## (19) World Intellectual Property Organization International Bureau



# ) 1888 - 1888 - 1888 - 1888 - 1888 - 1888 - 1888 - 1888 - 1888 - 1888 - 1888 - 1888 - 1888 - 1888 - 1888 - 188

#### (43) International Publication Date 7 July 2005 (07.07.2005)

### **PCT**

# (10) International Publication Number WO 2005/060570 A2

(51) International Patent Classification: Not classified

(21) International Application Number:

PCT/US2004/040612

(22) International Filing Date: 3 December 2004 (03.12.2004)

(25) Filing Language:

;

English

(26) Publication Language:

English

(30) Priority Data:

60/528,572 10 December 2003 (10.12.2003) US 60/532,207 22 December 2003 (22.12.2003) US 60/585,447 2 July 2004 (02.07.2004) US

(71) Applicant and

(72) Inventor: DE LA CRUZ, Moises [US/US]; 7895 South 68th Street Court, Cottage Grove, MN 55016 (US).

(74) Agents: BOHN, David, C. et al.; Westman, Champlin & Kelly, P.A., Suite 1600 - International Centre, 900 Second Avenue South, Minneapolis, MN 55402-3319 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated. for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

#### Declaration under Rule 4.17:

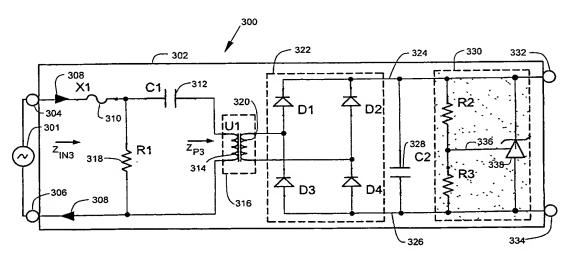
of inventorship (Rule 4.17(iv)) for US only

#### Published:

 without international search report and to be republished upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: AC TO DC CONVERTER CIRCUIT



(57) Abstract: An AC to DC converter circuit (300) includes a transformer (316) having primary (314) and secondary (320) windings, a rectifier bridge (322) coupled to the secondary winding, a DC filter capacitor (328) coupled to the rectifier bridge, a voltage regulator (330) coupled the DC filter capacitor and to DC output contacts (332, 334). The converter circuit includes an AC reactance (312) coupled in a series circuit with the primary winding and AC input contacts (304, 306). The AC reactance limits AC excitation voltage at the primary winding to less than the AC line voltage.